Collider –Accelerator Department Machine Advisory Committee
8-10 December 2014 Meeting (MAC-11)

Charge

We ask you to review the technical aspects of the Low-Energy RHIC electron Cooling (LEReC) upgrade project, and the Coherent electron Cooling Proof-of-Principle (CeC PoP) Test.

The low-energy Au+Au program will be a multi-year effort in search of a critical point in the QCD phase diagram. The Low-Energy RHIC electron Cooling (LEReC) project aims to increase the Au+Au luminosity in the energy range from 3.85 to 9.8 GeV/nucleon (i.e. below and up to the nominal injection energy) by a factor of 3 to 10. The cooling is based on a bunched electron beam, generated in a DC photo-gun (with an SRF gun backup option) and a 704 MHz SRF accelerator.

Cooling intense high-energy hadron beams poses a major challenge for modern accelerator physics. Coherent electron Cooling (CeC) is a method of cooling hadron beams using co-propagating electron beams with some amplification process. The CeC Proof-of-Principle (CeC PoP) Test is a project aiming at proving experimentally the concept of CeC using FEL amplification. We ask you to evaluate the progress of the CeC PoP experiment and comment or make recommendations on the commissioning plan or any other aspect of the experiment.

It is requested that a concise report responsive to this charge be forwarded to the C-AD Chair, Thomas Roser, by 22 December 2014.